ISSN (print) 0093-4666 © 2014. Mycotaxon, Ltd. ISSN (online) 2154-8889

MYCOTAXON

http://dx.doi.org/10.5248/129.455

Volume 129(2), pp. 455–458 *October–December 2014*

Dictydiaethalium dictyosporangium sp. nov. from China

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Abstract — *Dictydiaethalium dictyosporangium,* described as new, is characterized by a branched pseudocapillitium and spores, which are 10–12 µm in diam. and ornamented with long ridges that sometimes form an incomplete banded reticulum. The new species, which was collected on the bark of a dead log in Henan Province, is described and illustrated by light and scanning electron micrographs. A key to three known *Dictydiaethalium* species is also provided. The holotype is deposited in the Herbarium of Mycological Institute of Jilin Agricultural University (HMJAU) in Changchun, China.

Key words — myxomycetes, taxonomy, *Dictydiaethaliaceae*

Introduction

Dictydiaethalium was established by Rostafińsky in 1873. Two species are currently recognised in the genus (Kirk et al. 2008), of which only one has been reported from China (Li & Li 1989). A specimen found on the bark of a dead log in Shiziping village, Sanmenxia city, Henan province, China, in September 2013 differed from the two named species and is described here as new.

Materials & methods

Fruiting bodies and microscopic structures were examined by light and scanning electron microscopes (Zhang & Li 2013). Permanent slides were prepared according to Robbrecht (1974) by spreading a capillitium in a drop of 94% alcohol, determining color after one minute, and then mounting in Hoyer's medium (Martin & Alexopoulos 1969). Color terms are given according to Flora of British Fungi (Royal Botanic Garden Edinburgh 1969). Morphological observations and measurements were made using a stereomicroscope (20×) and optical microscope (400× and 1000×). About ten pseudoaethalia, pseudocapillitia, and 20 spores were measured using a Leica DM100 microscope, and photographs were taken with a Canon G15 camera. For SEM images, pseudoaethalia attached to a holder were coated with gold using a Hitachi E-1010 sputter

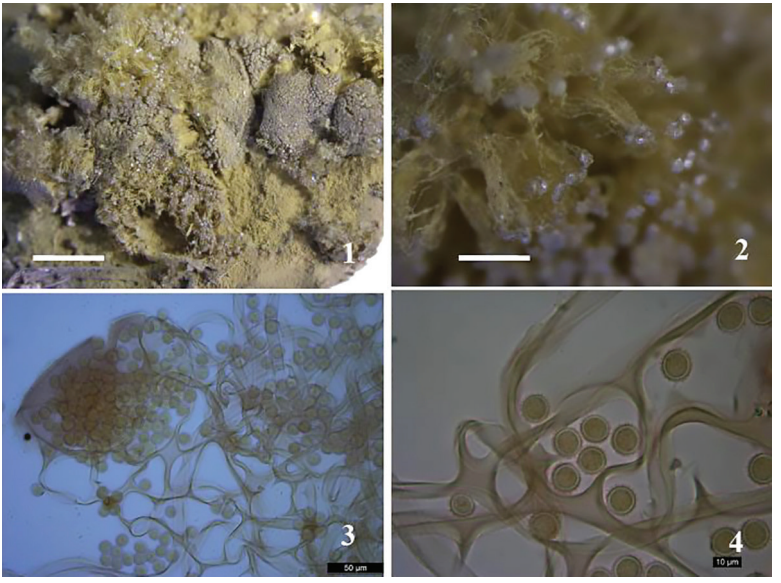

Plate 1. *Dictydiaethalium dictyosporangium* (Isotype, HMJAU10256): 1–2. Fruiting bodies; 3. Pseudocapillitium and spores (400×); 4. Pseudocapillitium and spores (1000×). Scale bars: 1 = 0.5 mm; 2 = 0.2 mm.

coating unit and examined with a Hitachi S-4800 scanning electron microscope at 10 kV at Changchun Institute of Applied Chemistry, Chinese Academy of Sciences. The specimens are deposited in the Herbarium of Mycological Institute, Jilin Agricultural University, Changchun, China (HMJAU).

Taxonomy

Dictydiaethalium dictyosporangium B. Zhang & Yu Li, **sp. nov.** Plates 1–2

MycoBank MB807341

Differs from *Dictydiaethalium dictyosporum* by its branched pseudocapillitia and from *D. plumbeum* by its spores with long ridges sometimes forming an incomplete banded reticulum.

Type—China, Henan province, Sanmenxia city, Shiziping village, on the bark surface of a dead log, 22 September 2013, Zhang Bo 100802 (**Holotype**, HMJAU10244; **isotype**, HMJAU10256).

Etymology—*dictyosporangium* (Latin) = with a branched pseudocapillitium.

Sporophores a pseudoaethalium, at maturity simulating an aethalium, effused, depressed, spreading over 22 mm, olivaceous to gray olivaceous, pulvinate, irregular in outline, more or less circular, extending up to 2.2 cm, up to 1.1 cm thick. Hypothallus shining, membranous, abundantly developed

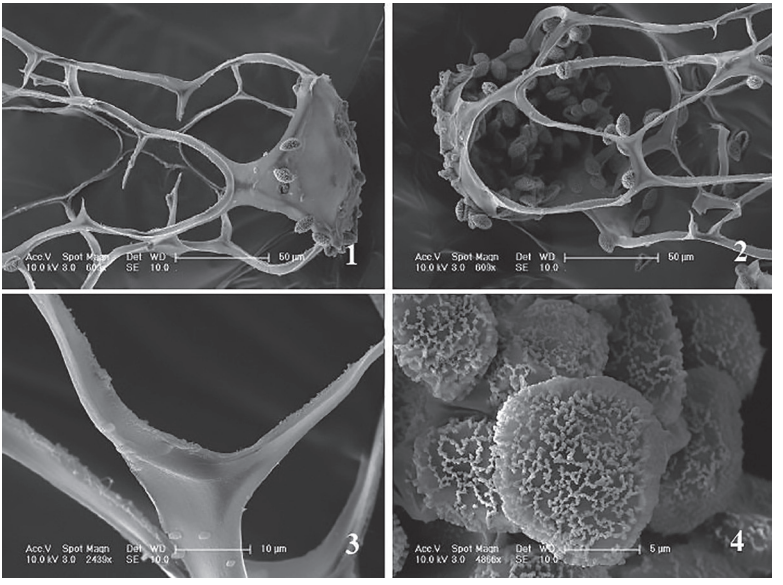

Plate 2. *Dictydiaethalium dictyosporangium* (Isotype, HMJAU10256), scanning electron micrographs: 1–2. Partial pseudocapillitium and spores; 3. Branched pseudocapillitium; 4. Spores ornamented with long ridges, arranged in an incomplete banded reticulum.

and surrounding the pseudoaethalium. Peridium single, membranous, translucent, slender and evanescent at the base, olivaceous brown in transmitted light, smooth, persistent. Columella absent. Capillitium absent. Pseudocapillitium filiform, flat, thick on one side, 3–5 μm wide, smooth expect for the thickened part which bears a row of warts, branched and anastomosed, running down to the base of pseudoaethalia, yellowish green to olivaceous green, pale yellow by transmitted light. Spores free, bright yellowish green in mass, pale yellow to colourless by transmitted light, 10–12 μm diam., ornamented with long ridges sometimes forming an incomplete banded reticulum

Comments: *Dictydiaethalium* was previously reported with two species: *D. dictyosporum* Nann.-Bremek. (Nannenga-Bremekamp 1966) and *D. plumbeum* (Schumach.) Rostaf. (Lister 1894). *Dictydiaethalium dictyosporum* has minutely banded-reticulate spores (ca. 9–12 μm diam.) and unbranched and thicker (ca. 8 μm wide) pseudocapillitia, while *D. plumbeum* is diagnosed by spinulose or warted spores (ca. 8–12 μm diam.) and narrower (ca. 2 μm wide) pseudocapillitia.

Key to species of *Dictydiaethalium*

1. Spores reticulate, completely or incompletely banded 2
1. Spores spinulose or warted, not reticulate ..... *D. plumbeum*
2. Pseudocapillitia connected by threads ..... *D. dictyosporangium*
2. Pseudocapillitia not connected ..... *D. dictyosporum*

Acknowledgments

We express our deep appreciation to Professors A.J.S. Whalley and Shuanglin Chen for their valuable revisions and kind help. This research was funded by grants from the National Basic Research Program of China (3140010180).

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